

## **PRIME Numbers & Operations, Day 1**

### **Race for Red**

#### **Facilitator Instructions**

**Have participants consider this game without playing it and discuss in their groups how this game plays out. (There will not be time to play Version 3 in the course as you would have to roll a total of 1000 times to win. Teachers may want to try this version in their classroom using multiple dice, for example, 4 at a time.)**

#### **Race for Red, Version 1**

1. Roll the die and take that many yellow counters.
2. Once you have **4** yellow counters, trade for 1 blue counter.
3. Once you have **3** blue counters, trade for 1 green counter.
4. Once you have **2** green counters, trade for 1 red counter.

The first one with 1 red counter wins.

#### **Race for Red, Version 2**

1. Roll the die and take that many yellow counters.
2. Once you have **3** yellow counters, trade for 1 blue counter.
3. Once you have **3** blue counters, trade for 1 green counter.
4. Once you have **3** green counters, trade for 1 red counter.

The first one with 1 red counter wins.

#### **Race for Red, Version 3**

1. Roll the die and take that many yellow counters.
2. Once you have **10** yellow counters, trade for 1 blue counter.
3. Once you have **10** blue counters, trade for 1 green counter.
4. Once you have **10** green counters, trade for 1 red counter.

The first one with 1 red counter wins.

## Debrief

Ask participants the following questions:

- *Which game was easiest to remember the trading rules for? Why do you think that?*
- *How much did you have to roll in each of the versions of the game to get a blue counter?*
- *In Version 3 of the game, why might you call the blue section the tens place?*
- *What place is the green section? (hundreds)? the red section (thousands)? Why? (You have to get ten counters in one column to trade for one counter in the next column.)*
- *Why is it convenient to have one trading rule?*

Emphasize that we use a place value system based on trading 10 of one unit for one of the next size in a consistent pattern (which is the basis for Key Concept 4) to make it easy to remember the rules and predict what to do in a given situation. The same pattern works and can be extended to include small numbers, large numbers, or decimals. Again, this is why it is a key idea as it applies to different number types and, as a result, spans grade levels.

Explain to participants that the activity and the questions asked are deliberate and purposeful—the activity was chosen and the follow up questions were designed to highlight the consistency within our place value system.